

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS

1. A method of calibrating an endoscope including the steps of:
placing a calibration target in front of said endoscope;
capturing an image frame of said calibration target by said endoscope;
determining a pixel value for each pixel of said image frame;
comparing each said pixel value with a reference value; and
determining a compensation value for each pixel.
- 2 A method as claimed in claim 1, wherein said calibration target is a uniform white card.
3. A method as claimed in claim 1, wherein said calibration target is illuminated by an external source.
4. A method as claimed in claim 1, wherein said calibration target is illuminated by said endoscope.
5. A method as claimed in claim 3, wherein said illumination is adjusted to avoid pixel saturation.
6. A method as claimed in claim 4, wherein said illumination is adjusted to avoid pixel saturation.
- 7 A method as claimed in claim 3, wherein pixel saturation is avoided by adjusting the shutter period of a camera of said endoscope.
- 8 A method as claimed in claim 4, wherein pixel saturation is avoided by adjusting the shutter period of a camera of said endoscope.
9. A method as claimed in claim 1, wherein at least one of the luminance or chrominance values are measured to determine said pixel value for each said pixel.

10. A method as claimed in claim 1, wherein said pixel value for each said pixel is measured by determining RGB components for each said pixel.

11. A method as claimed in claim 1, wherein said reference value is a predetermined value.

12. A method as claimed in claim 1, wherein said reference value is the value of a pixel from said image frame.

13. A method as claimed in claim 1, wherein said reference value is the value of the brightest pixel from said image frame.

14. A method as claimed in claim 1, wherein said reference value is the value of a pixel located about the centre of said image frame.

15. A method as claimed in claim 1, further including the step of storing said compensation values for later use.

16. A method as claimed in claim 1, wherein said compensation value for each pixel is determined by:

$$\text{compensation value} = \frac{\text{reference value}}{\text{actual value}}$$

17. A method as claimed in claim 1, wherein said compensation value will be:

$$P'(i_n) = [(R(i_n) + R'(i_n)) \cdot X_R(i_n)], [(G(i_n) + G'(i_n)) \cdot X_G(i_n)], [(B(i_n) + B'(i_n)) \cdot X_B(i_n)]$$

Where $i_n = (x_m, y_n)$, $P'(i_n)$ is a compensated pixel, X_R , X_G and X_B are gain constants and R' , G' and B' are offsets.

18. A method as claimed in claim 17, wherein $i_n = (x_m, y_n, Z_o)$ and Z_o is a coefficient dependent on the zoom setting of said endoscope.

19 A method as claimed in claim 1, wherein said calibration process is calculated for each zoom setting of said endoscope.

20. A method as claimed is claim 1, wherein zoom settings are interpolated from said method.

21. A method as claimed in claim 1, wherein said compensation value are compressed.

22. A method of operating an endoscope including the steps of:
capturing an image frame,
determining a value for each pixel,
applying a compensation value determined from a calibration process to each pixel, and
viewing the resultant image.

23. A method of adjusting the disparity of an endoscope by laterally shifting left and right images in opposing directions.